

responding to the livestock revolution

*the role of globalisation and
implications for poverty alleviation*



edited by E Owen, T Smith, MA Steele, S Anderson, AJ Duncan,
M Herrero, JD Leaver, CK Reynolds, JI Richards, JC Ku-Vera

bsas
british society of animal science

publication **33**

Responding to the Livestock Revolution

The role of globalisation and implications for poverty alleviation

Cover photograph
©FARM-Africa

Responding to the Livestock Revolution

Edited by

E Owen, T Smith, MA Steele, S Anderson, AJ Duncan, M Herrero, JD Leaver, CK Reynolds, JI Richards, JC Ku-Vera



Nottingham University Press
Manor Farm, Main Street, Thrumpton
Nottingham NG11 0AX, United Kingdom
www.nup.com

NOTTINGHAM

First published 2004
© British Society of Animal Science

All rights reserved. No part of this publication may be reproduced in any material form (including photocopying or storing in any medium by electronic means and whether or not transiently or incidentally to some other use of this publication) without the written permission of the copyright holder except in accordance with the provisions of the Copyright, Designs and Patents Act 1988. Applications for the copyright holder's written permission to reproduce any part of this publication should be addressed to the publishers.

British Library Cataloguing in Publication Data

Responding to the Livestock Revolution: the role of globalisation and implications for poverty alleviation

i Owen, E., ii Smith, T., iii Steele, M.A., iv Anderson, S., v Duncan, A.J., vi Herrero, M., vii Lever, J.D., viii Reynolds, C.K., ix Richards, J.I., x Ku-Vera, J.C.

ISBN 1-904761-51-8

Disclaimer

Every reasonable effort has been made to ensure that the material in this book is true, correct, complete and appropriate at the time of writing. Nevertheless, the publishers and authors do not accept responsibility for any omission or error, or for any injury, damage, loss or financial consequences arising from the use of the book.

Typeset by Nottingham University Press, Nottingham
Printed and bound by Hobbs the Printers, Hampshire, England

CONTENTS

Preface	xi
1. Responding to the increasing global demand for animal products: implications for the livelihoods of livestock producers in developing countries	1
D.Thomas ¹ and D. Rangnekar ² <i>¹Sustainable Agriculture Group, Natural Resources Institute, The University of Greenwich, Chatham Maritime, Kent ME4 4TB, UK; ²National Dairy Development Board, Anand-388 001, Gujarat, India</i>	
2. Mapping livestock and poverty: a tool for targeting research and development	37
P.K. Thornton ^{1,2} , P.M. Kristjanson ¹ , R.L. Kruska ¹ and R.S. Reid ¹ <i>¹International Livestock Research Institute (ILRI), PO Box 30709, Nairobi 00100, Kenya; ²Institute of Atmospheric and Environmental Sciences, University of Edinburgh, Edinburgh EH9 3JG, UK</i>	
3. The Livestock Revolution - a view on implications for Africa	51
D.M. Mwangi and A. Omore <i>Kenya Agricultural Research Institute, PO Box 30148, Nairobi, Kenya</i>	
4. The impact of trade agreements on livestock producers	67
M. Upton ¹ and J. Otte ² <i>¹Department of Agricultural and Food Economics, School of Agriculture, Policy and Development, The University of Reading, Earley Gate, PO Box 237, Reading RG6 6AR, UK; ²AGAL, Food and Agriculture Organisation, Via delle Terme di Caracalla, 00100 – Rome, Italy</i>	
5. Disease and biosecurity constraints to trade in animal products	85
A.D. James <i>Veterinary Epidemiology and Economics Research Unit, School of Agriculture Policy and Development, The University of Reading, Earley Gate, PO Box 237, Reading RG6 6AR, UK</i>	

Table of contents

6. The potential impact of Vietnam's entry to the WTO on the livelihoods of smallholder pig producers and small pig traders 91
- A. McLeod¹, N. Taylor¹, L.T.K. Lan², N. T. Thuy², D. H. Dung², P.Q. Minh²
¹VEERU, School of Agriculture Policy and Development, The University of Reading, Earley Gate, P.O. Box 237, Reading RG6 6AR, UK; ²Veterinary Project Management Unit, Strengthening of Veterinary Services Vietnam Project, Department of Animal Health, Hanoi, Vietnam
7. The contribution of livestock to smallholder livelihoods: the situation in Mexico 99
- C.M. Arriaga-Jordán¹ and R.A. Pearson²
¹Coordinación General de Investigación y Estudios Avanzados, Universidad Autónoma del Estado de México, Instituto Literario No. 100, Col. Centro, 50000 Toluca, Estado de México, MEXICO; ²Centre for Tropical Veterinary Medicine (CTVM), University of Edinburgh, Roslin, Midlothian EH25 9RG, UK
8. Small animal species in the livelihoods of small-scale farmers in tropical Bolivia 117
- R.T. Paterson¹ and F. Rojas²
¹Sustainable Agriculture Group, Natural Resources Institute, The University of Greenwich, Chatham Maritime, Kent ME4 4TB, UK. Current address: 13 Damer Gardens, Henley-on-Thames, Oxfordshire RG9 1HX, UK; ²Centro de Investigación Agrícola Tropical (CIAT), Casilla 247, Santa Cruz, Bolivia
9. Livestock, land use change, and environmental outcomes in the developing world 133
- R.W. Blake¹ and C.F. Nicholson²
Departments of Animal Science¹ and Applied Economics and Management², Cornell University, Ithaca, NY 14853 USA
10. Demand-driven crop-ruminant intensification: trans-regional analysis to understand patterns of change using village level data from three continents 155
- I. Baltenweck, S. Staal and M.N.M. Ibrahim
International Livestock Research Institute (ILRI), PO Box 30709, Nairobi 00100, Kenya

Table of contents

11. Effect of intensification on feed management of dairy cows in the Central Highlands of Kenya 167
D. Romney¹, C. Utiger^{1,4}, R. Kaitho¹, P. Thorne³, A. Wokabi², L. Njoroge¹, L. Chege², J. Kirui², D. Kamotho² and S. Staal¹
¹*International Livestock Research Institute (ILRI), PO Box 30709, Nairobi, Kenya;* ²*Ministry of Agriculture and Rural Development, PO Box 30082, Nairobi, Kenya;* ³*Stirling Thorne Associates, PO Box 23, Llangefni, Ynys Mon LL74 8ZE, UK;* ⁴*Institute of Animal Sciences, ETH, CH-8092 Zurich, Switzerland*
12. Ecological impacts of sustainable systems for smallholders in Vietnam 179
B. Ogle¹ and T.R. Preston²
¹*Department of Animal Nutrition and Management, Swedish University of Agricultural Sciences, Box 7024, 750 07 Uppsala, Sweden;* ²*University of Tropical Agriculture Foundation, UTA-TOSOLY, AA # 48, Socorro, Santander, Colombia*
13. Research to alleviate poverty in the face of industrialisation of livestock production 191
Ann Waters-Bayer¹ and Wolfgang Bayer²
¹*ETC Ecoculture, POB 64, NL-3830 AB Leusden, Netherlands;* ²*Independent advisor, Rohnsweg 56, D-37085 Göttingen, Germany*
14. Meeting the increased demand for animal products in Asia: opportunities and challenges for research 209
C. Devendra
(International Livestock Research Institute, PO Box 30709, Nairobi, Kenya). Contact address: 130A Jalan Awan Jawa, 58200 Kuala Lumpur, Malaysia
15. Livestock and the poor: issues in poverty-focused livestock development 229
C. Heffernan
Livestock Development Group, School of Agriculture, Policy and Development, The University of Reading, Earley Gate, PO Box 237, Reading RG6 6AR, UK
16. GM technology: a tool to benefit livestock production 247
R.H. Phipps¹ and A. Cockburn²
¹*School of Agriculture, Policy and Development, The University of Reading, PO Box 237, Reading RG6 6AR, UK;* ²*Monsanto Company, Maris Lane, Cambridge CB2 2LQ, UK*

Table of contents

17. GM technologies – opportunities and threats of applying GM technology in less developed and developed countries. ‘Aladdin’s Cave or Pandora’s Box?’ 259
A. Bennett
The Syngenta Foundation for Sustainable Agriculture, WRO 1002.11.66, CH-4002 Basel, Switzerland
18. Financing the livestock revolution in the developing world: givers and getters 271
R. T. Wilson
Bartridge House, Umberleigh, Devon EX37 9AS, UK
19. Knowledge management and dissemination for livestock production: global opportunities and local constraints 287
C.J. Garforth
School of Agriculture, Policy and Development, The University of Reading, PO Box 237, Reading, RG6 6AR, UK
20. Development of *Farmer Field School* methodology for smallholder dairy farmers in Kenya 299
B. Minjauw¹, H.G. Muriuki² and D. Romney¹
¹International Livestock Research Institute (ILRI), PO Box 30709, Nairobi, Kenya; ²Ministry of Agriculture and Rural Development, PO Box 30028, Nairobi, Kenya
21. Demand and supply side changes in the Santa Cruz, Bolivia, milk sector 1985 - 2002: impact on small-scale producers and poor consumers 315
J. Rushton¹, N. Duran¹ and S. Anderson²
¹CEVEP, Casilla 10474, La Paz, Bolivia; ²Department of Agricultural Sciences, Imperial College London, Wye, Ashford TN25 5AH, UK
22. Demand and supply changes in the livestock sector and their impact on smallholders: the case of dairying in Kenya: a summary 323
S.J. Staal¹, M.M. Waithaka^{1,2}, G.A. Owour¹, and M. Herrero^{1,3}
¹International Livestock Research Institute (ILRI), PO Box 30709, Nairobi, Kenya; ²Kenya Agricultural Research Institute (KARI), PO Box 57811, Nairobi, Kenya; ³Institute of Atmospheric and Environmental Sciences, The University of Edinburgh, West Mains Road, Edinburgh, EH9 3JG, UK

Table of contents

23.	Demand and supply changes in the dairy sector in Kathmandu city: impact on smallholders	333
	P. M. Tulachan <i>International Centre for Integrated Mountain Development (ICIMOD), GPO Box 3226, Kathmandu, Nepal</i>	
24.	A comparative analysis of milk sectors - Nairobi, Kathmandu, Santa Cruz: Opportunities for pro-poor policies	347
	S. Anderson ¹ , J. Rushton ² , P. M. Tulachan ³ , S. Staal ⁴ and M. Herrero ^{4,5} ¹ <i>Department of Agricultural Sciences, Imperial College London, Wye, Ashford TN25 5AH, UK;</i> ² <i>CEVER, Casilla 10474, La Paz, Bolivia;</i> ³ <i>International Centre for Integrated Mountain Development (ICIMOD), GPO Box 3226, Kathmandu, Nepal;</i> ⁴ <i>International Livestock Research Institute (ILRI), PO Box 30709, Nairobi, Kenya;</i> ⁵ <i>Institute for Atmospheric and Environmental Sciences, University of Edinburgh, Edinburgh, EH9 3JG, UK</i>	
	Index	361